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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,147	12/28/2001	Young-Goo Lee	SEC.875	5226

7590 10/21/2003

VOLENTINE FRANCOS, P.L.L.C.
Suite 150
12200 Sunrise Valley Drive
Reston, VA 20191

EXAMINER

GUERRERO, MARIA F

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/029,147

Applicant(s)

LEE ET AL.

Examiner

Maria Guerrero

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is the First Action on the merits.

Claims 1-12 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on March 31, 2003 has been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4-8, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (U.S. 6,534,384) in view of Jones et al. (U.S. 6,117,778) (cited by Applicant).

Nakano et al. teaches depositing a layer on a wafer and polishing (planarizing) the layer (Fig. 2A, col. 6, lines 58-65). Nakano et al. discloses the resulting planarized layer comprising an uniform region of uniform thickness extending along a wafer surface and a non-uniform region of non-uniform thickness corresponding to an upper sidewall

of the wafer (Fig. 2A). Nakano et al. discloses coating a mask and exposing the non-uniform region of the planarized layer and at least a portion of the uniform region (Fig. 1(h), col. 7, lines 1-25). Nakano et al. shows wet etching at least the exposed non-uniform region of the planarized layer and at least a portion of the uniform region, removing the mask, and forming a planarized pattern layer (Fig. 1(h)-(j), 2C-2D, col. 7, lines 1-42, col. 9, lines 1-5, 20-22). Nakano et al. teaches forming a pattern layer comprising a portion of the uniform region of the planarized layer (Fig. 1(j), 2C-2D). Nakano et al. shows that the masking could be performed with a photoresist (Fig. 1(h), col. 9, lines 20-26).

Nakano et al. is silent about the steps of removing a portion of the coated photoresist layer and stripping the remaining portion of the coated photoresist layer. However, Jones et al. shows coating a photoresist layer on the deposited layer, removing a portion of the coated photoresist layer, stripping a remaining portion of the coated photoresist layer, and planarizing the uniform region of the deposited layer (Fig. 1B-1F, col. 4, lines 38-55).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Nakano et al. reference by including the conventional steps of removing a portion of the coated photoresist layer and stripping the remaining portion of the coated photoresist layer as taught Jones et al. because Nakano et al. suggested that a photoresist could be employed (Nakano et al., col. 9, lines 20-26). The modification would provide a process that would prevent peeling-off during device manufacturing operation and would increase the number of acceptable chips, which

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could be made of each wafer (Nakano et al., col. 9, lines 30-35; Jones et al., col. 2, lines 7-10).

5. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (U.S. 6,534,384) and Jones et al. (U.S. 6,117,778) as applied to claims 1-2, 4-8, 10-12 above, and further in view of Liu et al. (U.S. 6,287,961).

Regarding claims 3 and 9, the combination Nakano et al. and Jones et al. does not specifically show the photoresist layer having the specific thickness as claimed.

However, Liu et al. shows forming a photoresist layer having a thickness of from about 7000 to about 15000 angstroms as well known in the art (col. 9, lines 38-55).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination Nakano et al. and Jones et al. by specifying the thickness of the photoresist layer as taught Liu et al. in order to assure optimal dimensional stability (Liu et al., col. 9, lines 50-55).

Response to Arguments

6. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 703-305-0162.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Maria Guerrero
Patent examiner
October 9, 2003